MPEC Technical Overview

Mission Planning Enterprise Contract (MPEC)
Industry Day Conference
6-9 May 03

Outline

- MPEC Contractor Technical Activities
  - Legacy System Maintenance
  - JMPS New Development
- Technical Challenges
- Technical Future

Mission Planning Product Line

Mission Planning System (MPS)
- Robust Unix-based system for PGM and Low Observal
- Developed by Sanders in 1991
- Used by Bombers, Fighters w/PGMs, Recce

Tactical Automated Mission Planning System (TAM
- Robust Unix-based system
- Precision Guided Munitions (PGMs)
- Used by F-18, E-2, and F-14

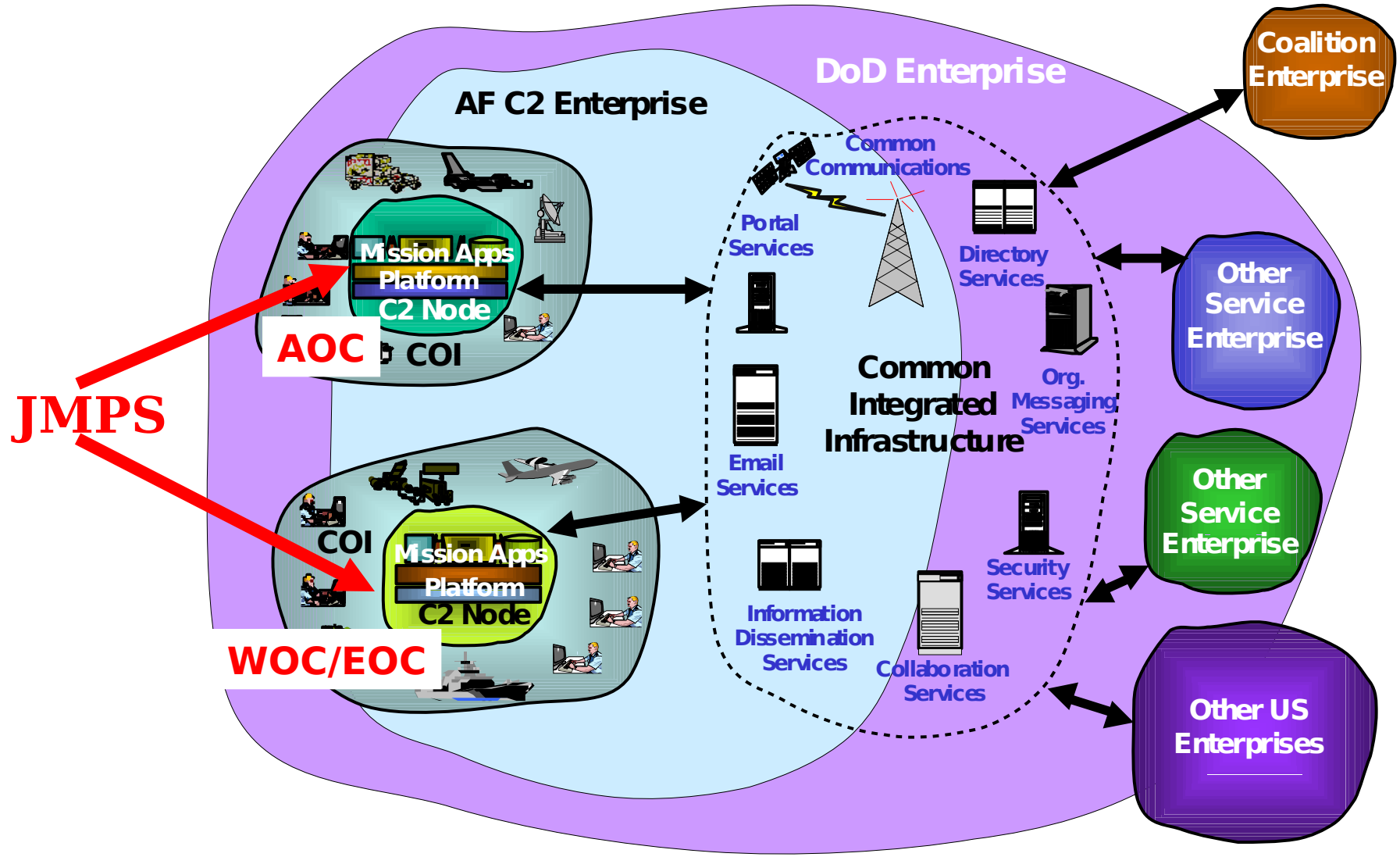
Army Mission Planning System (AMPS)

Portable Flight Planning System (PFPS)
- Suite of PC-based software components
- Developed by Tybrin/GTRI in 1995
- Used by Fighters, Transport, and Airlift

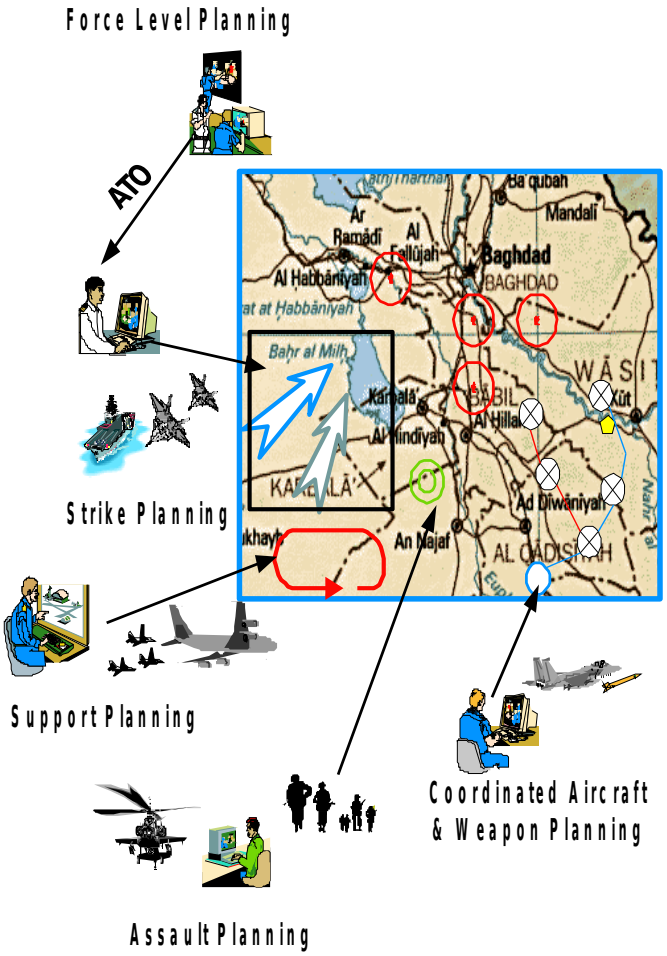
Joint Mission Planning System (JMPS)
- Next generation PC-based software
- Developed by NGIT (Tybrin, GTRI, Boeing, BAE)
- All Air Force, Army & Navy platforms migrating from

JMPS

JMPS Relationship to AF C2 Enterprise Reference Architecture



AF JMPS OV-1 -- JMPS Mission



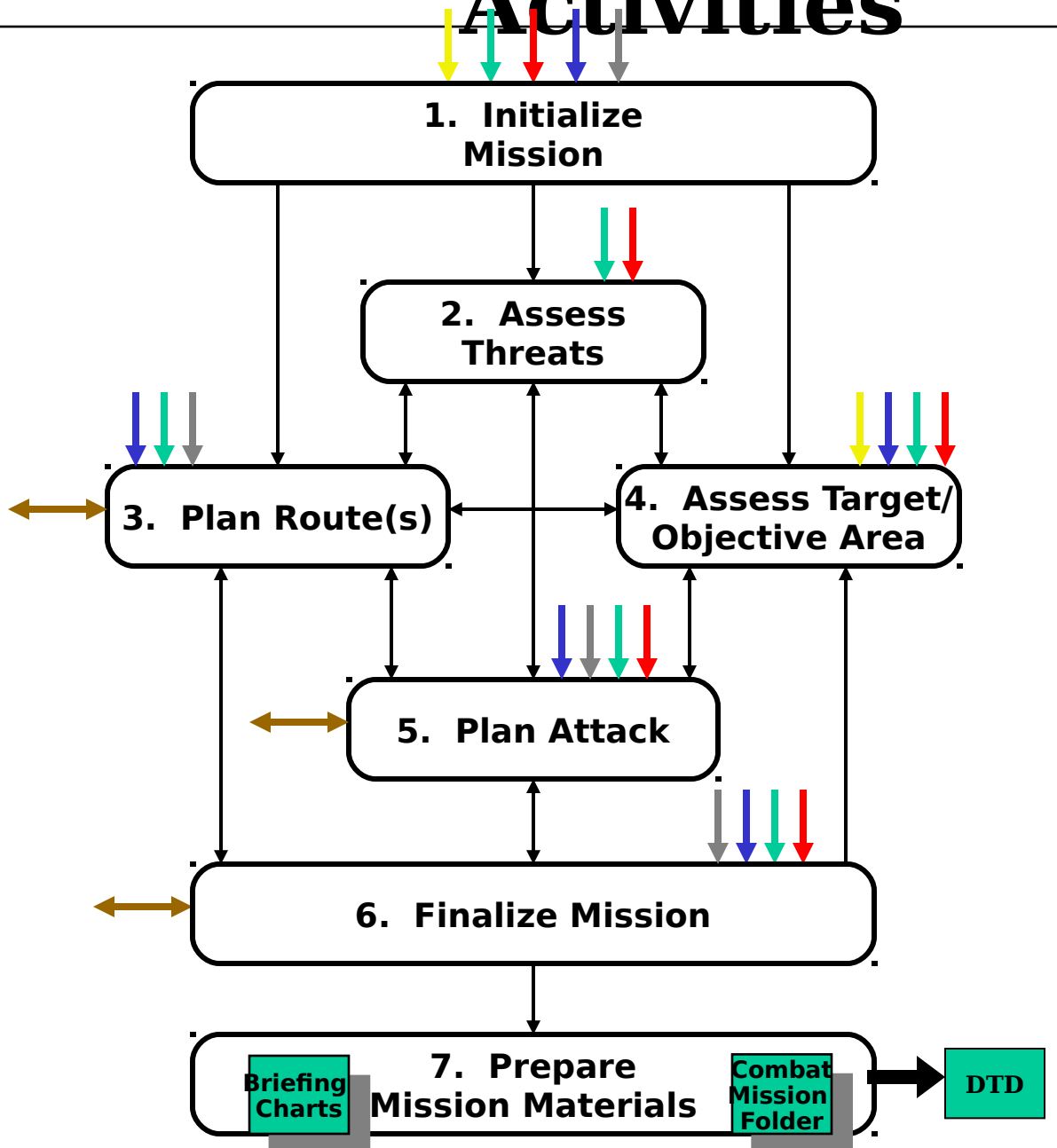
Mission Statement

- Evolve world-class joint mission planning capabilities to support the war-fighter today and fulfill Joint Vision 2010

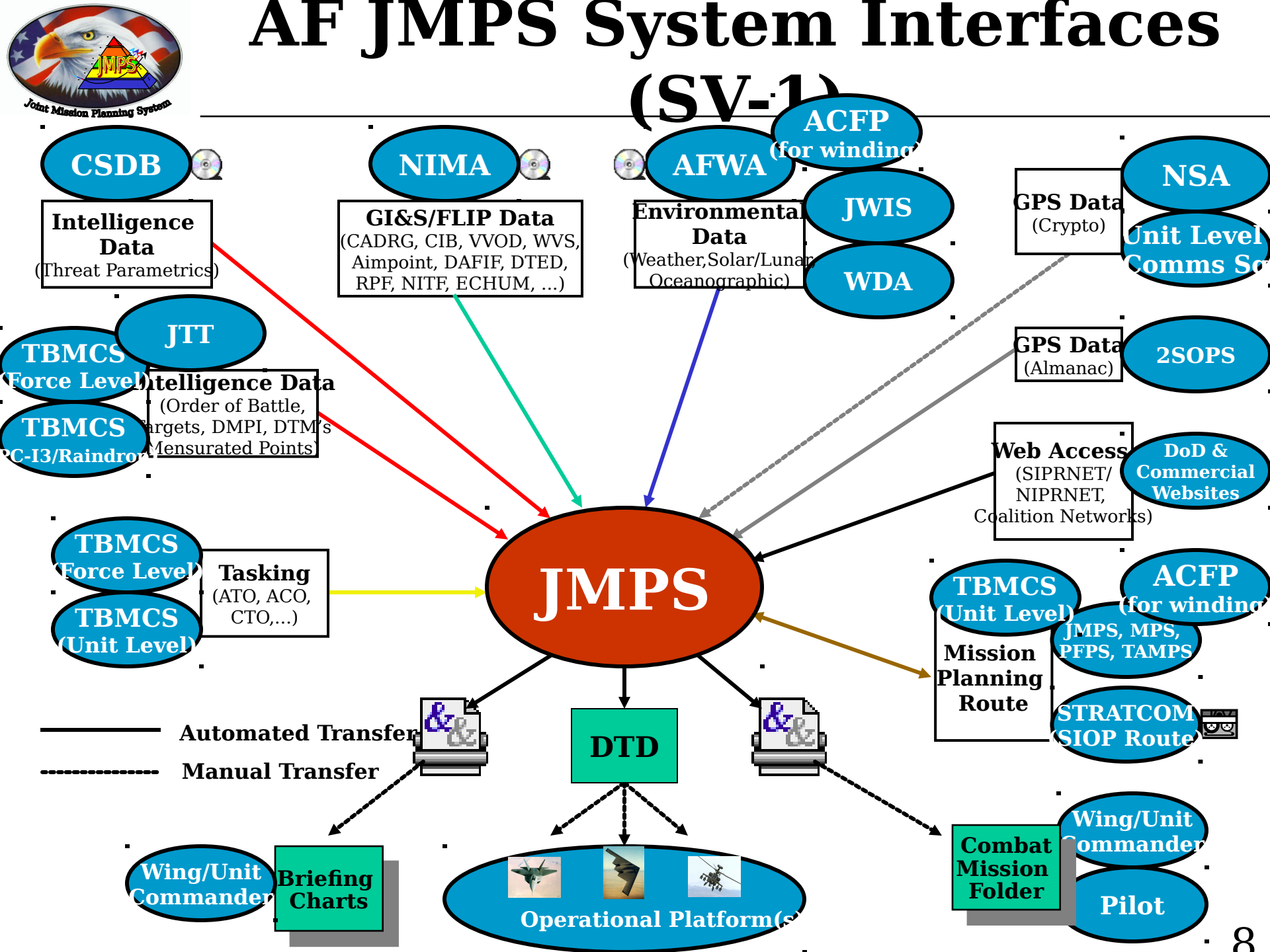
Objectives

- Scaleable framework for mission planning systems
- Collaborative inter-service mission planner
- DII COE / C4ISR compliance
- Interoperability with C2 systems
- Reduce life-cycle costs
- Capability $\geq$ legacy systems
- Smooth migration

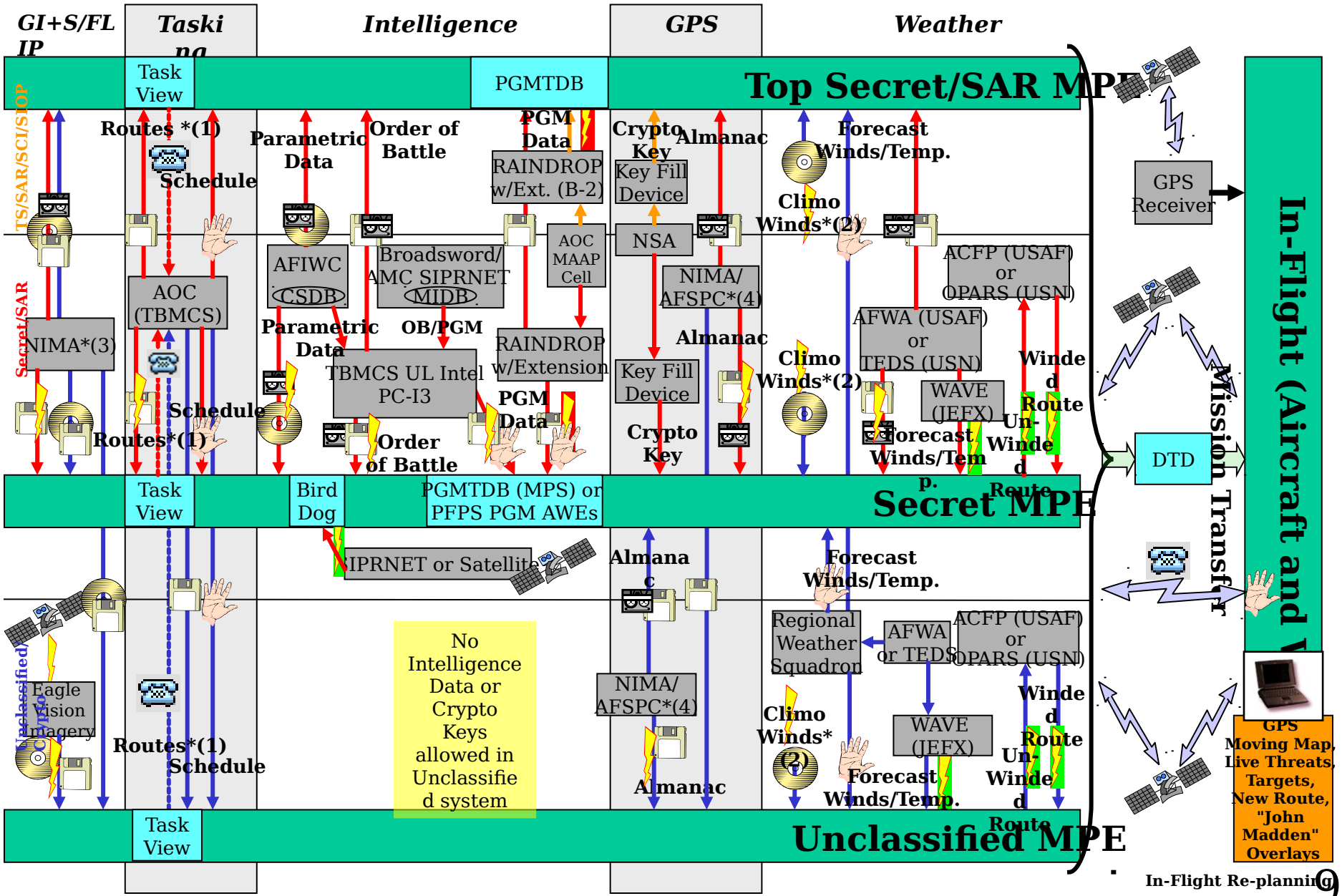
JMPS OV-5 -- High-Level Activities



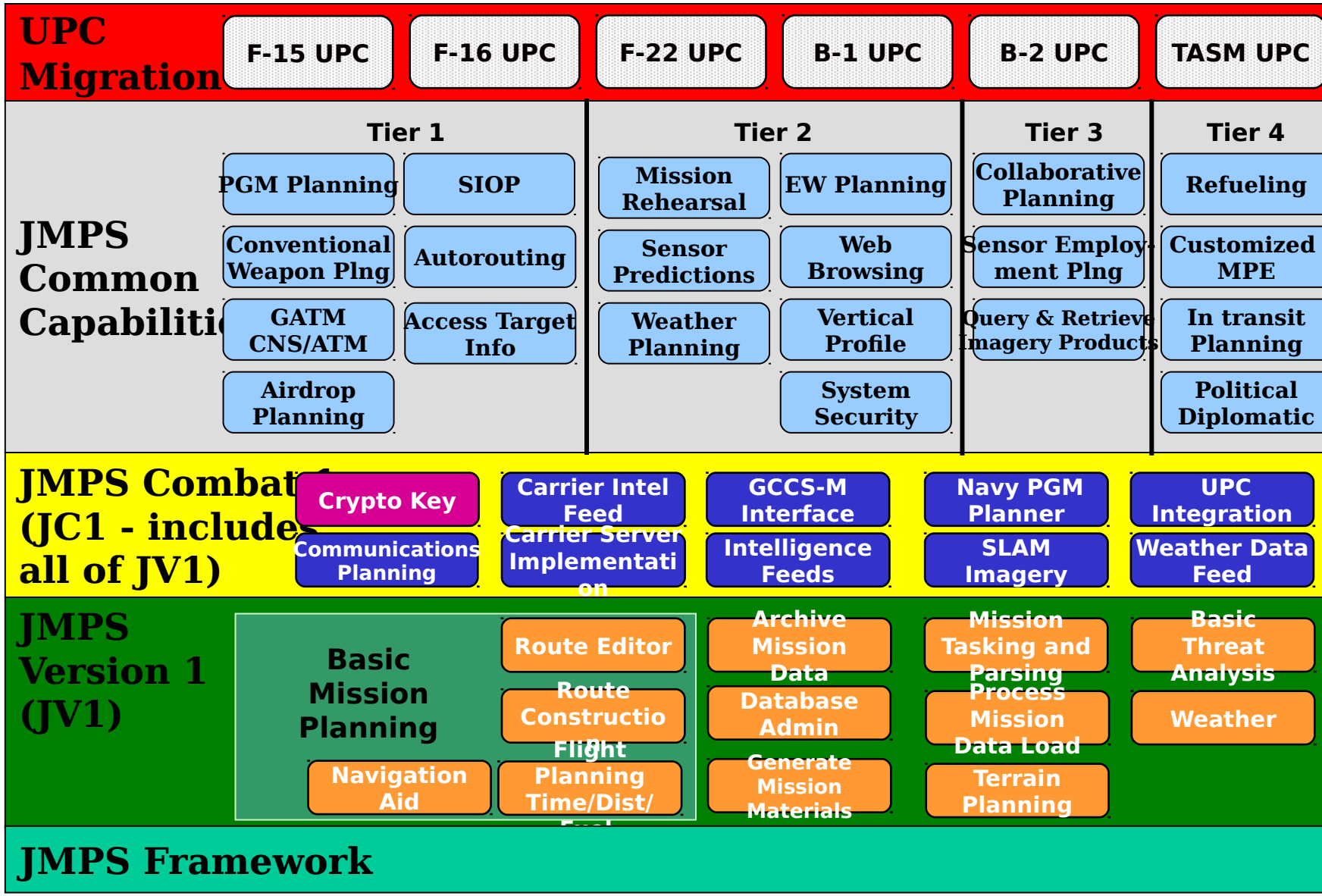
AF JMPS System Interfaces (SV-1)



Mission Planning Environment (MPE) Data

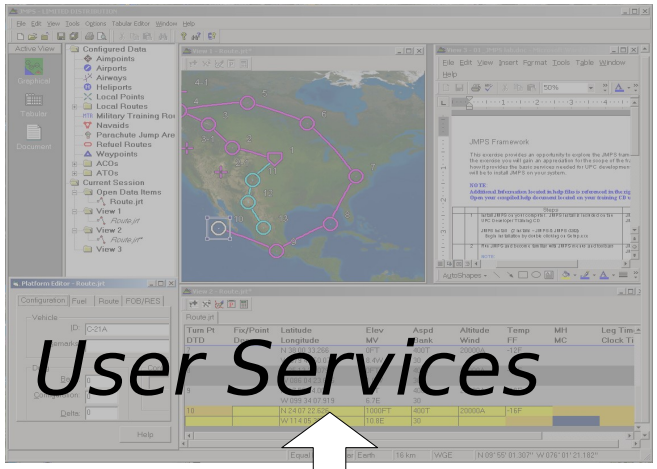


JMPS SV-1 - Mission Application Layer



JMPS Software Architecture

JMPS is based on a multi-tier architecture which separates the *User Services* (presentation) from the *Business Services*, which in turn is separated from the *Data Services*.



Basic Mission Planning Capabilities

Business Services

Data Services

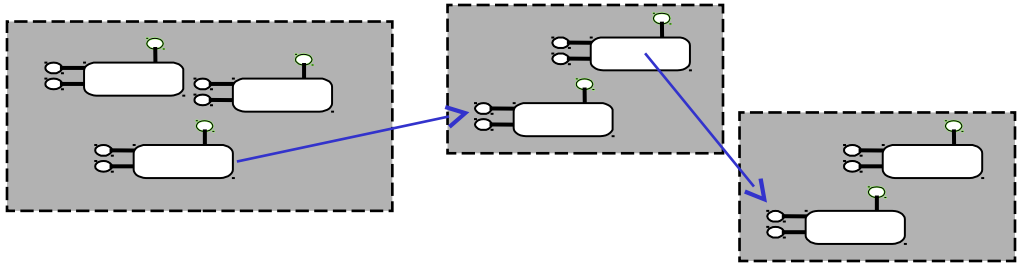
Data

Technical Challenges

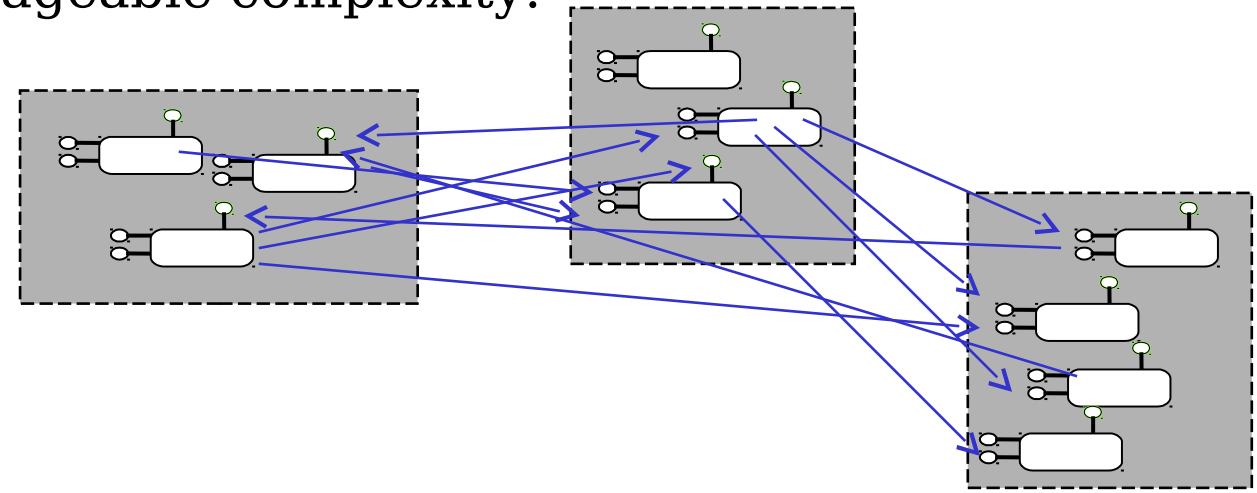
- **Managing the Level of Complexity**
  - **External Interfaces & Internal Interactions**
- **Horizontal & Vertical Integration Approach**
  - **Developer (CC, UPC)**
  - **SEIC**
- **Test Strategy**
- **Business and Technical Rules (as presented in other briefings)**

Managing the Level of Complexity

Maintaining an interface-based design requires clear interaction models with well defined collaborations and sufficient interfaces:

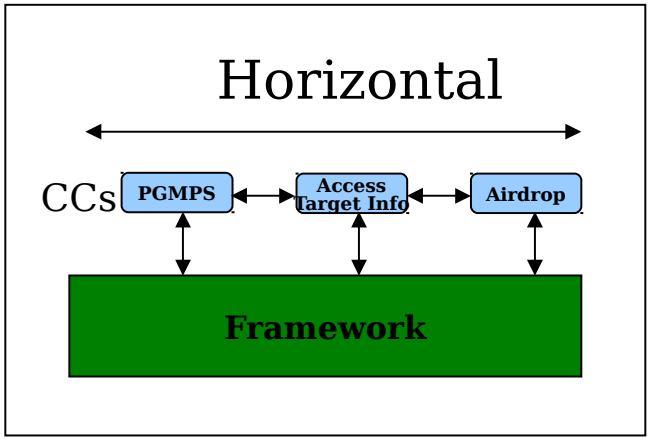


Proliferation of interfaces and components leads to unmanageable complexity:



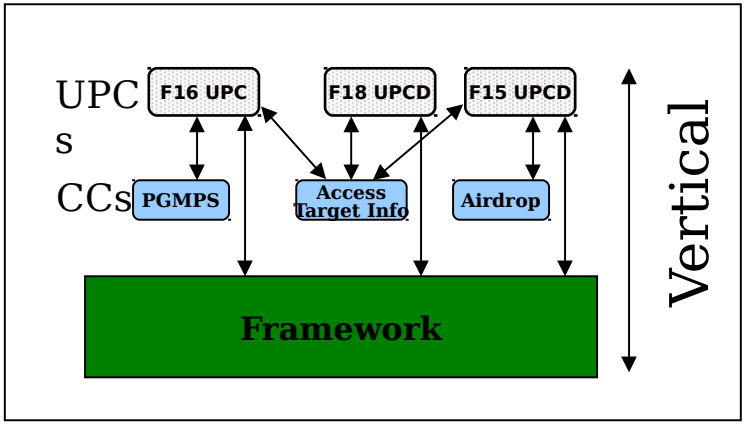
CC Integration and Test

- Common Capability Developers will be responsible for integration and test of their CCs with the JMPS Framework and any associated CCs.
- The SEIC will then assure horizontal integration of the new CC with all existing CCs and the Framework.



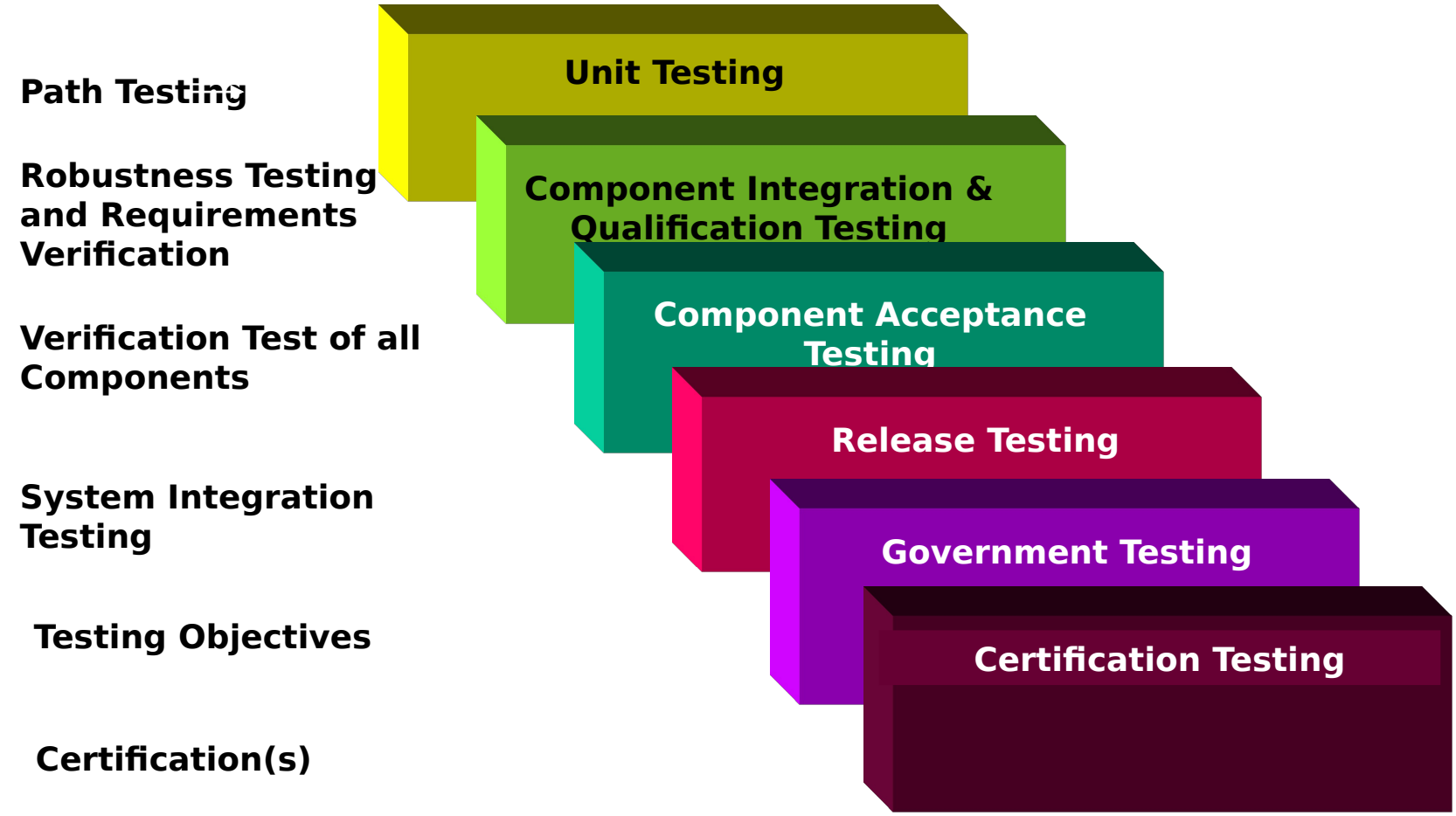
UPC Integration and Test

- Unique Planning Component Developers will be <u>fully responsible for all integration and test</u> of their UPCs with any associated CCs and the JMPS Framework.



Test Strategy

JMPS components are expected to pass through a rigorous testing strategy.



Technical Future

- **Enhanced Machine-to-Machine Communication**
  - **Sharing Detailed Route Up to Unit/Force Level**
    - **Common Route Definition, CRD Format**
    - **XML Based**
    - **Accessible Via Web Services**
- **Keep Moving With Commercial Technology IAW Enterprise Architecture Guidelines**
  - **COM (now)**
  - **.Net (now and into the future)**
- **Extend MP Activities toward the Aircraft**
  - **In Flight Mission (Re)Planning**
  - **Plan on Ground and uplink to Aircraft in Flight**